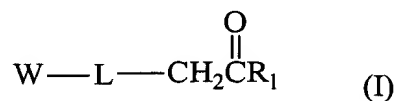


**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) Functionalized compound of general formula (I) :



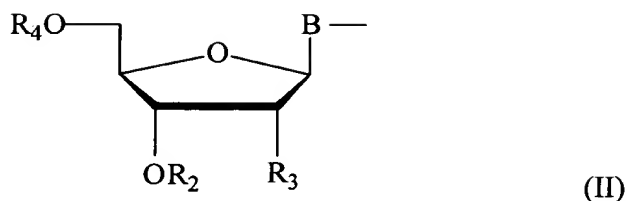
in which:

W represents a nucleotide or nucleoside, or an analog of a nucleotide or nucleoside,

L represents a linker arm comprising a chain of at least four atoms in series, and L is a saturated or unsaturated hydrocarbon-based chain, optionally interrupted by at least one function chosen from amine, amide and oxy functions, and is grafted onto any position of a nitrogen-containing base of the nucleotide or nucleoside of W, and

R<sub>1</sub> represents a linear or branched alkyl chain.

2. (Original) Compound according to claim 1, characterized in that R<sub>1</sub> represents an alkyl chain having at most 6 carbon atoms.
3. (Original) Compound according to claim 2, characterized in that R<sub>1</sub> represents a methyl group.
4. (Currently Amended) Compound according to claim 1, characterized in that L comprises a chain of at least eight atoms in series.
5. (Canceled)
6. (Previously Presented) Compound according to claim 1, characterized in that W corresponds to the general formula (II)



in which:

B represents a nitrogen-containing base,

R<sub>2</sub> represents H or a protective group,

R<sub>3</sub> represents H, F, OH, SH, NH<sub>2</sub>, OCH<sub>3</sub> or OR<sub>5</sub> in which R<sub>5</sub> represents a protective group or an alkyl chain, and

R<sub>4</sub> represents an H radical, a protective group or a mono-, di- or triphosphate group,

W being attached to L via B.

7. (Original) Compound according to claim 6, characterized in that the nitrogen-containing base is cytosine, uracil or adenine.

8. (Previously Presented) Compound according to claim 6, characterized in that R<sub>2</sub> is an H, R<sub>3</sub> is an OH group and R<sub>4</sub> is a triphosphate group.

9. (Previously Presented) Compound according to claim 6, characterized in that R<sub>2</sub> is a 2-cyanoethyl-N,N-diisopropylphosphoramidite group and R<sub>3</sub> is H or OR<sub>5</sub> in which R<sub>5</sub> is a protective group used in oligoribonucleotide synthesis and R<sub>4</sub> is a 4,4'-dimethoxytrityl group.

10. (Previously Presented) Functionalized polynucleotide comprising at least one functionalized compound according to claim 1.

11. (Previously Presented) Functionalized polynucleotide according to claim 10, characterized in that this polynucleotide is prepared by a chemical and/or enzymatic route.

12. (Original) Functionalized polynucleotide according to claim 11, characterized in that this polynucleotide is prepared using an enzymatic amplification reaction.

13. (Previously Presented) Labeled functionalized polynucleotide, characterized in that it comprises at least one functionalized compound of general formula (I'):



in which:

W represents a nucleotide or nucleoside, or an analog of a nucleotide or nucleoside,

L represents a linker arm comprising at least four atoms, and L is a saturated or unsaturated hydrocarbon-based chain, optionally interrupted by at least one function chosen from amine, amide and oxy functions, and is grafted onto any position of a nitrogen-containing base of the nucleotide or nucleoside of W,

n represents an index equal to 0 or 1, and

R<sub>1</sub> represents a linear or branched alkyl chain,

the alkyl ketone group of said functionalized compound being attached to a labeling reagent.

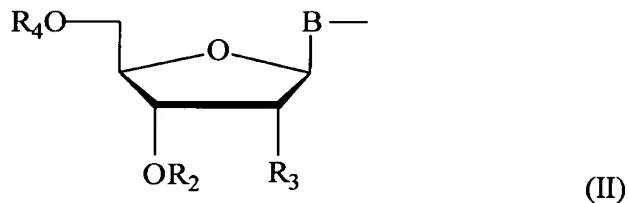
14. (Original) Polynucleotide according to claim 13, characterized in that R<sub>1</sub> represents an alkyl chain having at most 6 carbon atoms.

15. (Original) Polynucleotide according to claim 14, characterized in that R<sub>1</sub> represents a methyl group.

16. (Previously Presented) Polynucleotide according to claim 13, characterized in that L comprises at least eight atoms.

17. (Canceled)

18. (Previously Presented) Polynucleotide according to claim 13, characterized in that W corresponds to the general formula (II)



in which:

B represents a nitrogen-containing base,

R<sub>2</sub> represents H or a protective group,

R<sub>3</sub> represents H, F, OH, SH, NH<sub>2</sub>, OCH<sub>3</sub> or OR<sub>5</sub> in which R<sub>5</sub> represents a protective group or an alkyl chain, and

R<sub>4</sub> represents an H radical, a protective group or a mono-, di- or triphosphate group,

W being attached to L via B.

19. (Original) Polynucleotide according to claim 18, characterized in that the nitrogen-containing base is cytosine, uracil or adenine.

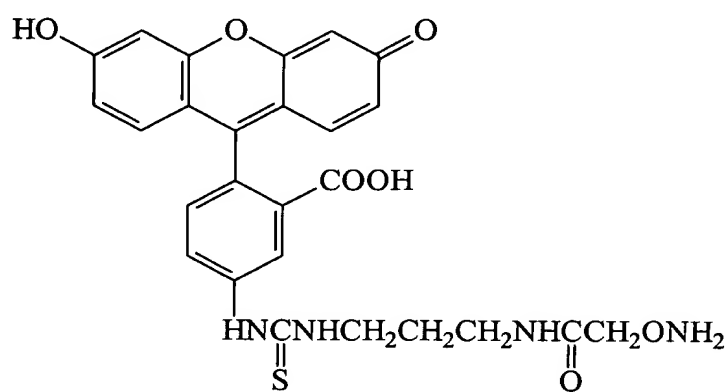
20. (Previously Presented) Polynucleotide according to claim 18, characterized in that R<sub>2</sub> is an H, R<sub>3</sub> is an OH group and R<sub>4</sub> is a triphosphate group.

21. (Previously Presented) Compound according to claim 18, characterized in that R<sub>2</sub> is a 2-cyanoethyl-N,N-diisopropylphosphoramidite group and R<sub>3</sub> is H or OR<sub>5</sub> in which R<sub>5</sub>

is a protective group used in oligoribonucleotide synthesis and  $R_4$  is a 4,4'-dimethoxytrityl group.

22. (Previously Presented) Polynucleotide according to claim 13, characterized in that the labeling reagent comprises a hydrazine or alkoxyamine function.

23. (Previously Presented) Polynucleotide according to claim 22, characterized in that the labeling reagent is:



24. (Previously Presented) Method for detecting a target nucleic acid, characterized in that this target nucleic acid is brought into contact with at least one functionalized nucleotide as defined in claim 13, in the presence of elements and under conditions required for producing a polynucleotide, so as to produce a functionalized polynucleotide; the polynucleotide obtained is labeled with a labeling reagent; and then said labeled polynucleotide is detected.

25. (Original) Method according to claim 24, characterized in that the functionalized polynucleotide is obtained using an enzymatic amplification reaction.

26. (Previously Presented) Method for detecting a target nucleic acid, characterized in that this target nucleic acid is brought into contact with a functionalized

polynucleotide according to claim 10; the labeling reagent is reacted; and the presence of the target nucleic acid is detected.

27. (Previously Presented) Method for detecting a target nucleic acid, characterized in that a labeled polynucleotide according to claim 13 is available for use, this target nucleic acid is brought into contact with the labeled polynucleotide; and the presence of the target nucleic acid is detected.

28. (Canceled)

29. (Currently Amended) Compound according to claim 4, characterized in that L contains a chain of 8 to 30 atoms in series.

30. (Currently Amended) Polynucleotide according to claim 16, characterized in that L contains a chain of 8 to 30 atoms in series.

31. (New) Compound according to claim 1, wherein said linker atom comprises at least 4 carbon atoms.